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Total Number of Pages in This Submission

Application Number	10/815,944
Filing Date	04/02/2004
First Named Inventor	Thomas E. RICCIARDELLI
Art Unit	1794
Examiner Name	C. Thompson
Attorney Docket Number	42186A

ENCLOSURES (Check all that apply)

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Date	12/05/2008	Reg. No.	32,023

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42186A



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

In re Application of	:	PATENT
	:	
Thomas E. RICCIARDELLI et al.	:	Appeal No. _____
	:	
Serial No.: 10/815,944	:	Patent Art Unit: 1794
	:	
Filed: April 2, 2004	:	Examiner: C. Thompson
	:	
For: PRODUCT AND PROCESS FOR	:	
PRODUCING A MOLDED PRODUCT	:	
FROM RECYCLED CARPET WASTE	:	

BRIEF ON APPEAL

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APPELLANT BRIEF
ON APPEAL UNDER 37 C.F.R. § 41.37

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

For the Appeal to the Board of Patent Appeals and Interferences from the decision of June 5, 2008 finally rejecting claims 34-58, Applicants submit the following Brief on Appeal in accordance with 37 C.F.R. § 41.37.

1. Real Party in Interest

The real party in interest in this application is SelecTec, Inc. by assignment from the inventor.

2. Related Appeals and Interferences

There are no other related appeals or interferences known to Appellant, Appellant's legal representative, or assignee, which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending Appeal.

3. Status of Claims

Claims 34-58 are rejected and on appeal. Claims 1-33 are cancelled.

4. Status of Amendments

No amendments were filed after the final rejection.

5. Summary of Claimed Subject Matter

The present invention is directed to a fiber-reinforced flexible matrix and to a process of forming the fiber-reinforced matrix. The fiber-reinforced matrix of independent claim 34 contains about 10% to about 75% by weight waste scrap carpeting and about 25% to about 90% by weight of a flexible second polymer. (Page 5, lines 11-19). The carpeting includes a polymer backing and carpet fibers having a melting point higher than the melting point of polyvinyl chloride. (Page 8, lines 26 to page 9, line 6). The waste scrap carpeting contains 50% to about 80% by weight of non-melting filler materials including inorganic fillers. (Page 10, lines 8-11). The resulting matrix is a substantially uniform mixture and a substantially uniform continuous phase of the polymers having the carpet fibers dispersed therein. (Page 13, lines 1-8).

Independent claim 47 is directed to a fiber-reinforced flexible matrix where the matrix comprises 10% to about 75% by weight waste scrap carpeting and 25% to about 90% by weight

of a flexible polyvinyl chloride. (Page 14, lines 6-11). The carpeting includes a backing and carpet fibers from a polymer having a melting point higher than the melting point of polyvinyl chloride. (Page 8, line 29 to page 9, line 6). The scrap carpeting has a backing of about 30% to about 50% of a polymer. (Page 7, lines 13-15). The scrap carpeting also contains about 50% to about 80% by weight inorganic fillers and latex materials. (Page 10, lines 8-11). The resulting matrix is a substantially continuous phase of polyvinyl chloride and the polymer from the scrap carpet having the carpet fibers, inorganic fillers and latex materials dispersed therein. (Page 13, lines 6-8). The continuous phase of the matrix is formed by heating the mixture to melt the polyvinyl chloride without melting the carpet fibers. (Page 12, line 22 to page 13, line 9).

Independent claim 49 is directed to a process of forming a fiber-reinforced flexible molded article comprising the steps of supplying a feed mixture to the inlet of an extruder, heating the feed mixture to a temperature sufficient to melt the polymer components and the polyvinyl chloride without melting the fiber component of the carpet. (Page 14, lines 15-24). The feed mixture comprises 25 to 90 wt% polyvinyl chloride and 10 to 75 wt% carpet scrap. (Page 14, lines 8-9). The heating step in the extruder heats the feed mixture without reducing the fiber length to form a substantially uniform and continuous mixture of the polymer component and the polyvinyl chloride and the unmelted fiber component dispersed therein. (Page 15, lines 11-13, page 16, lines 3-7). The uniform mixture is discharged from the extruder and shaped and cooled to form the flexible molded article of a matrix of a substantially continuous phase of the polymer component and the polyvinyl chloride have the unmelted fiber component dispersed therein (Page 17, lines 9-14).

6. Grounds of Rejection to be Reviewed on Appeal

The following are the grounds for rejection for review:

- 1) Claims 34-48 stand rejected as being anticipated under 35 U.S.C. § 102(b) over U.S. Patent Publication No. 2002/0025414 to Desai et al.
- 2) Claims 49-58 stand rejected under 35 U.S.C. § 103(a) over U.S. Patent Publication No. 2002/0025414 to Desai et al. in view of U.S. Patent No. 5,895,071 to Young et al.

7. Argument

A. Claims 34-48 Are Not Anticipated Under 35 U.S.C. § 102(b)

Independent claim 34 is directed to a fiber-reinforced, flexible matrix comprising 10 wt% to 75 wt% waste scrap carpeting having first polymer backing, carpet fibers having a melting point higher than polyvinyl chloride and 25 wt% to 90 wt% of a second flexible polymer. The matrix of claim 34 has a substantially continuous phase of the first and second polymers with the carpet fibers and inorganic fillers dispersed therein. The continuous phase is formed by melting the first and second polymers without melting the carpet fibers. The melting of the first and second polymers form a blend or mixture of the polymers in a manner to form a substantially continuous phase of the polymers having the carpet fibers dispersed therein.

Claims 34-48 are rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent Publication No. 2002/0025414 to Desai et al. Anticipation requires that each and every feature recited in the claim be found expressly or inherently in the cited reference. Inherency requires that each claim limitation necessarily be present in the single prior art reference. The Examiner

does not identify where each specific limitation of the claims is found in Desai et al. in the claimed order. Thus, the Examiner has not established anticipation of the claims.

The Examiner states that claims 34 and 47 are “product-by-process claims”. The claims are specifically directed to a composition of matter, namely a fiber-reinforced flexible matrix. Claims 34 and 47 specifically recite the matrix comprising “a substantially continuous phase of said first and second polymer” and as having the carpet fibers dispersed therein. Thus, the claims specifically recite the composition and physical or structural characteristics of the matrix. The claim language reciting the continuous phase being formed by melting the polymers without melting the carpet fibers is a limitation to define the nature of the continuous phase of the first and second polymers in the matrix of the final product. Thus, this limitation defines the final product. This limitation does not convert claims 34 and 47 to “product-by-process claims” such that the claim limitations cannot be disregarded as suggested in the final Office Action. Instead, the claim limitation further defines the composition and the physical characteristics of the claimed fiber-reinforced flexible matrix.

(1) Claim 34 is Not Anticipated

Desai et al. does not disclose either expressly or inherently a continuous phase of a first polymer and a second polymer having carpet fibers dispersed in the continuous phase. The Examiner does not expressly state in the Final Rejection that the product of Desai et al. is a continuous phase. Moreover, the Final Rejection does not identify where a continuous phase is disclosed either expressly or inherently in Desai et al. Desai et al. does not disclose a continuous phase of a polymer and carpet fibers or a continuous phase of a first and second polymer as in the claimed invention. Applicants submit that the final product of Desai et al. is not inherently a

continuous phase of two or more polymers and does not have carpet fibers dispersed in a continuous phase of polymers. Anticipation requires that each feature of the claimed invention be found in the cited reference in the order of the claimed invention.

Desai et al. specifically discloses in paragraph 0038 forming “powder” particles from the various materials which are then applied to a substrate to form a uniform layer of particles having uniform thickness. The powder particles can be produced from carpet materials. As noted by the Examiner, a virgin plastic can also be added to the powder from the carpet material. The substrate is disclosed in Desai et al. as being a release paper, a belt or a bottom surface of a primary backing. The powder particles are heated and “fused” to form the continuous layer. Desai et al. specifically states “fusing or fused, for purposes of the present invention, is understood to mean that the recycled material, preferably a powder, is not completely reduced to a liquid state, like liquid plastisol, but instead, is joined of the individual particles or granules of the recycled material” (Paragraph 0032, emphasis added). Moreover, Desai et al. specifically discloses “preferably a majority, and most preferably over 90% of the recycled particles are granules substantially maintain their identity as particles” (Paragraph 0038, page 4, lines 7-10, emphasis added). Desai et al. does not disclose either expressly or inherently that the virgin thermoplastic is melted or that a continuous phase of the virgin plastic and the polymer backing from the carpet are capable of forming a continuous phase.

Desai et al. expressly states that the recycled particles or powder maintain their identity on a “macroscopic” level but as part of the continuous layer. The recycled materials retain their particulate or powder form such that one can “visually... identify many of the individual recycled particles”. (Paragraph 0038, page 4, lines 12-13). Thus, Desai et al. expressly discloses that the resulting product is not a continuous phase of a first and a second polymer, but rather

fused discrete particles that maintain their particle or powder identity and characteristics and are visually identifiable in the final product. The fused particles of Desai et al. do not define a continuous phase of a first and second polymer. The Examiner has not explained how the fused powder particles of Desai et al. that are visually detectable in the final product correspond to the claimed continuous phase of a first and second polymer.

As noted above, the powder particles can be obtained from a carpet material. Any carpet fibers present in the powder particles remain in the discrete particles after the particles are fused together. The addition of a second polymer to the powder particles would serve only as a binder to assist in binding the powder particles together. The powder particles of carpet material are not melted to a liquid state so that the fibers cannot be dispersed in the second polymer.

The Action appears to disregard the plain language of claim 37 which defines the composition of matter. Claim 37 recites the continuous phase of the matrix being formed by melting the polymers. Thus, the limitation expressly defines the properties and characteristics of the continuous phase of the matrix. It is improper to disregard the express language of the claimed where the language defines the composition of matter.

As noted above, Desai et al. expressly states that the polymers are powder particles that are not reduced to a liquid state and retain their identifiable powder or particle characteristics. Thus, the method of Desai et al. is not capable of forming a continuous phase and the final product is not a continuous phase of a first polymer from the carpet and a second polymer since neither polymer component is melted to a liquid state. The Examiner disregards this express disclosure of Desai et al. and provides no reasonable basis to support a position that the unmelted, fused particles of Desai et al. correspond to the claimed continuous phase formed by melting the polymers from the carpet and the second polymer added to the scrap carpet. It is

clear that the claimed continuous phase of the first and second polymers of the present invention and the fused particles of Desai et al. are not the same. Desai et al. does not disclose or suggest the claimed final product, or the process of forming the final product. Thus, Desai et al. does not anticipate independent claim 34.

Desai et al. also does not disclose either expressly or inherently a flexible matrix having a continuous phase of (1) a first polymer provided by 10 wt% to 75 wt% carpet scrap which also contains 50 wt% to 80 wt% non-melting fillers, and (2) 25 wt% to 90 wt% of a flexible second polymer. Desai et al. discloses generally that the powdered recycled material can be mixed with a virgin thermoplastic “which can ultimately be fused into a backing layer or intermediate layer”. (Lines 10-11 of paragraph 0036). Desai et al. does not disclose either expressly or inherently that the virgin material is flexible. The Action has not established that the virgin thermoplastic materials of Desai et al. are inherently flexible. The Action has further failed to establish that the virgin thermoplastic of Desai et al. is mixed with the particles or powder of the carpet material such that the resulting mixture is in the form of a continuous phase. In contrast, Desai et al. expressly discloses that the carpet powder particles are visually distinguishable, and thus, cannot be a continuous phase of the virgin plastic and the polymer from the carpet powder.

In view of the deficiencies of Desai et al., independent claim 34 is not anticipated.

(2) Claim 35

Desai et al. does not disclose a fiber-reinforced flexible matrix having a continuous phase containing polyvinyl chloride as in claim 35.

(3) Claim 36

Desai et al. does not disclose a fiber-reinforced flexible matrix containing polyethylene copolymer in a continuous phase with the first and second polymers as in claim 36.

(4) Claim 37

Desai et al. does not disclose either expressly or inherently carpet pieces having a fiber length of 1/8 to 2 inches as in the claimed invention. Desai et al. is specifically directed to forming a powder from the various materials including the carpet scrap in order to enable the powder particles to fuse together. Desai et al. expressly discloses that the recycled powders have a particle size of 3,000 μm or less, and more preferably 1,000 μm or less, with a preferred range of about 250 μm to 1,500 μm . See, paragraph 0034. Thus, the powders used in the final product of Desai et al. cannot have a fiber length within the claimed range. The passage referred to in the Action refers to the chunks or particles of the fiber before feeding to the granulator. Thus, Desai et al. only discloses the pieces of fiber before being reduced to the appropriate powder particle size for fusing the powder particles into the final product. The passage referred to in the Action has no relation to the final product of Desai et al. or the claimed invention. Accordingly, claim 37 is not anticipated by Desai et al.

(5) Claim 38

Desai et al. does not disclose either expressly or inherently a continuous phase of a first and second polymer including polyamide fibers, polyester fibers or mixtures thereof as in claim 38.

(6) Claim 39

Desai et al. does not disclose expressly or inherently a continuous phase of a fiber-reinforced matrix where the matrix contains 45 wt% to 85 wt% polyvinyl chloride as in claim 39.

(8) Claim 40

Desai et al. does not disclose expressly or inherently a continuous phase of a first polymer from carpet scrap and a second polymer of flexible virgin polyvinyl chloride having a Shore A hardness of about 40 to 100 as in claim 40.

(9) Claim 41

Desai et al. does not disclose expressly or inherently a flexible matrix having a continuous phase of a first and second polymer where the carpet scrap is post consumer, post industrial or mixtures thereof as in claim 41.

(10) Claim 42

Desai et al. does not disclose expressly or inherently a matrix containing dioctyl phthalate as in claim 42.

(11) Claim 43

Desai et al. does not disclose expressly or inherently a fiber-reinforced matrix having a continuous phase containing 5-20 wt% carpet fibers.

(12) Claim 44

Desai et al. does not disclose expressly or inherently a fiber-reinforced matrix containing 10-55 wt% polyvinyl chloride from the carpet as in claim 44.

(13) Claim 45

Desai et al. does not disclose expressly or inherently a fiber-reinforced matrix from carpet comprising 15 wt% fiber, about 45 wt% polyvinyl chloride, and about 40 wt% inert material as in claim 45.

(14) Claim 46

Desai et al. does not disclose a fiber-reinforced matrix having a continuous phase containing polyvinyl chloride as a first polymer and a flexible second polymer as in claim 46.

(15) Claim 47

Independent claim 47 is directed to a fiber-reinforced flexible matrix where the matrix comprises a substantially continuous phase of polyvinyl chloride containing carpet fibers, inorganic fillers and latex materials. The fiber-reinforced flexible matrix comprises 10-75 wt% waste scrap carpeting which contains a backing and carpet fibers where the backing comprises 30 to 50 wt% of a first polymer and about 50 to 80 wt% inorganic fillers and latex materials. The matrix also comprises about 25 to 90 wt% of a flexible polyvinyl chloride. The matrix is a substantially continuous phase of the first polymer and the polyvinyl chloride having the carpet fibers, inorganic fillers and latex materials dispersed therein. The continuous phase is formed by melting the polyvinyl chloride and the first polymer without melting the carpet fibers.

Desai et al. does not disclose either expressly or inherently a fiber-reinforced flexible material having a continuous phase of a first polymer obtained from carpet backing and a second polymer from a flexible polyvinyl chloride. The Action has not identified where Desai et al. discloses a continuous phase formed from a polymer from the carpet backing and a flexible polyvinyl chloride. Thus, claim 47 is not anticipated.

Desai et al. specifically discloses the carpet material being reduced to form powder particles in paragraph 0038. The powder particles are applied to a substrate to form a layer having a uniform thickness. The resulting layer of the powder particles are fused such as by heating without melting the particles of the carpet material. Desai et al. expressly states that the powder particles are fused so that the material is not reduced to a liquid state, but instead that the resulting product is formed by joining the individual particles or granules. See, paragraph 0038. Thus, Desai et al. expressly discloses that the resulting product is formed from fused particles and that the polymers are not melted.

The fused particles of Desai et al. do not form a continuous phase of a first polymer from the carpet material and a second flexible polymer of polyvinyl chloride. The resulting products of Desai et al. are fused particles where each of the particles are visually detectable. Thus, the product of Desai et al. contains specifically defined domains of the carpet powder separated by other components such as another polymer. Therefore, a mixture of polyvinyl chloride or other virgin thermoplastic and the carpet powder of Desai et al. would form domains of the polyvinyl chloride and domains of the carpet powder. The polymers of Desai et al. are expressly not melted, and thus, cannot form a continuous matrix of the polymers as in the claimed invention. The Action has failed to establish that fusing the carpet powder of Desai et al. inherently forms a continuous phase of the polymers as in the claimed invention.

Furthermore, the resulting product of Desai et al. does not have a continuous phase of polyvinyl chloride and a first polymer obtained from the carpet fiber where carpet fibers, inorganic fillers and latex materials are dispersed in the continuous phase. Desai et al. specifically discloses the powder particles of the carpet fiber being fused together without melting. Therefore, the carpet fibers, inorganic fillers and latex materials are not dispersed in the polymer of the carpet powder or dispersed in a continuous phase of the polymer from the carpet scrap and polyvinyl chloride as in claim 47.

In view of the deficiencies of Desai et al., independent claim 47 is not anticipated.

(16) Claim 48

Desai et al. does not disclose either expressly or inherently a matrix having a continuous phase of a first polymer from the carpet scrap and polyvinyl chloride containing 5 to 20 wt% carpet fibers, 10 to 40% fillers materials and the remainder polyvinyl chloride as in claim 48. The Action has not established that these features are disclosed in Desai et al. either expressly or inherently.

B. Claims 49-58 Art Not Obvious Under 35 U.S.C. § 103(a)

On page 3 of the Final Rejection, claims 48 and 49 are rejected. Applicants presume the rejection intended to refer to claims 49-58, although claims 50-58 are not discussed in any form in the rejection under 35 U.S.C. § 103(a). In fact, the only claim in this rejection which is specifically identified is claim 47, which is referred to as a product-by-process claim. The basis of the reference to claim 47 is unclear since claim 47 is not rejected under 35 U.S.C. § 103.

The Final Rejection has not compared each of the claimed process steps to the cited patents or identified where each of the claimed features are found in the cited patents. As noted above, claims 50-58 are not addressed at any time in this rejection. The Examiner carries the initial burden of presenting a prima facie case of obviousness. To establish prima facie obviousness, the Examiner must show that each and every limitation of the claim is described or suggested by the cited patents or would have been obvious based on the knowledge of those of ordinary skill in the art. *In re Fine*, 837 F.2d, 1071, 1074 (Fed. Cir. 1988). Rejections based on obviousness cannot be sustained by mere conclusory statements. There must be some articulated reasoning with some rationale to support the legal conclusion of obviousness. *In re Kahn*, 441 F.3d, 977, 988 (Fed. Cir. 2006), *KSR International Co v. Teleflex Inc.*, 127 S.Ct. 1727, 1741 (2007). The final rejection has not shown each and every limitation of the claim in the cited patents or provided any rationale for the obviousness of the claimed process. Thus, the Action fails to establish prima facie obviousness of the claims.

(1) Claim 49

Independent claim 49 is directed to a process of forming a fiber-reinforced flexible molded article in the form of a matrix having a continuous phase of a first polymer component obtained from carpet scrap and polyvinyl chloride where the continuous phase has unmelted fiber dispersed therein. Claim 49 recites the steps of supplying the feed mixture to the inlet of an extruder, heating the mixture to melt the first polymer component of the carpet scrap and the flexible polyvinyl chloride without melting the fiber component where the feed mixture comprises 25 to 90 wt% flexible polyvinyl chloride and about 10 to 75 wt% carpet scrap and

where the carpet scrap has a backing material containing 30 to 50 wt% of a first polymer component.

The claimed process steps to obtain the resulting product would not have been obvious to one of ordinary skill in the art in view of Desai et al. and Young et al. Desai et al. clearly does not disclose the steps of forming a feed mixture containing 25 to 90 wt% flexible polyvinyl chloride and 10 to 75 wt% carpet scrap. Desai et al. further fails to disclose the step of supplying the feed mixture to the inlet of an extruder, heating the feed mixture in the extruder to a temperature sufficient to melt the first polymer component of the carpet scrap and the flexible polyvinyl chloride substantially without melting the carpet fiber and without reducing the fiber length to form a uniform and continuous mixture of the first polymer component and the melted polyvinyl chloride. Desai et al. also fails to disclose discharging the uniform and continuous mixture of the first polymer and polyvinyl chloride from an extruder and shaping and cooling the mixture to form a molded article of a substantially continuous phase of the first polymer component and the polyvinyl chloride having the unmelted fiber component dispersed therein.

In contrast to the claimed process, Desai et al. expressly discloses forming powder particles of the carpet material and depositing the powder particles on a substrate. The resulting layer of the powder particles are heated to fuse the particles without melting the particles to a liquid state. As expressly disclosed in paragraph 0038 of Desai et al., the particles are fused and not completely reduced to a liquid state. The particles are instead joined as individual particles or granules such that the particles or granules maintain their identity as particles and are visually identifiable. The Action has not provided any rationale for the basis that it would have been obvious to one of ordinary skill in the art to feed the carpet powder of Desai et al. into an extruder and melt the polymer components in view of the express teaching of Desai et al. to

avoid melting the polymers and instead merely fusing the powder particles to retain their identity as powder particles. Accordingly, Applicants submit that it would not have been obvious to one of ordinary skill in the art to extrude the powder particles of Desai et al. since the resulting product would clearly not be the result intended by Desai et al. It would not have been obvious to one of ordinary skill in the art to modify a product or process where the modification would destroy the intended result. Modifying Desai et al. as suggested in the Action would not produce the fused particles that are visually detectable as desired by Desai et al.

Young et al. discloses a process of extruding carpet scrap by melting the polymer components with various other additives to form pellets for further processing. Young et al. does not disclose a process for producing a fiber-reinforced flexible molded article where the molded article is a matrix of a continuous phase of a first polymer component and a polyvinyl chloride having unmelted fiber component dispersed therein. Thus, Young et al. also does not disclose the claimed process steps. The Final Rejection does not identify where Young et al. discloses the claimed process steps either expressly or inherently.

Young et al. appears to be relied on for melting carpet scrap and compatibilizing agents by heating in an extruder to about 204°C to produce a pelletized form of the product. Column 10, lines 33-35 of Young et al. discloses that the preferred melt compounding temperature of the scrap should be 230°C. Young et al. does not specifically disclose melting the polymers of the backing material and polyvinyl chloride without melting the fiber component. Young et al. also does not disclose melting the polymer of the backing material and polyvinyl chloride in an extruder without reducing the fiber length of the carpet fibers from the carpet scrap.

It would not have been obvious to one of ordinary skill in the art to feed the carpet powder particles of Desai et al. in an extruder as in Young et al. Desai et al. specifically

discloses the carpet powder as being fused to form the end product without melting the powder particles, but instead merely fusing the powder particles. In view of the teachings of Desai et al., it would not have been obvious to extrude the powder particles of Desai et al. since the resulting product would not be the intended product sought after by Desai et al. Accordingly, claim 49 is not obvious over the combination of Desai et al. and Young et al.

(2) Claim 50

Desai et al. and Young et al. do not disclose a molded flexible article having a continuous phase of a first polymer component and polyvinyl chloride where the matrix contains about 5 to 20 wt% fiber component and about 45 to 85 wt% of the first polymer component and polyvinyl chloride as in claim 50. Therefore, claim 50 is not obvious.

(3) Claim 51

Desai et al. and Young et al. do not disclose a process of forming a molded flexible article comprising 10 to 55 wt% polyvinyl chloride supplied from the carpet scrap as in claim 51 or the process steps of preparing the molded article.

(4) Claim 52

Desai et al. and Young et al. do not disclose the claimed process of forming a uniform mixture of melted polyvinyl chloride and unmelted fiber components having a melt flow index of less than about 5 as in claim 52.

(4) Claim 53

Desai et al. and Young et al. do not disclose a process of forming a molded article having a fiber component comprising polyamide fibers, polyester fibers and mixtures thereof as in claim 53.

(5) Claim 54

Desai et al. and Young et al. do not disclose a process of forming a molded article including the step of comminuting carpet scrap into pieces of up to two inches in length prior to feeding to an extruder as in claim 54.

(6) Claim 55

Desai et al. and Young et al. do not disclose a process of forming a molded article including the step of heating a feed mixture to a temperature of 140 to 190°C to melt the polyvinyl chloride without melting the fiber component as in claim 55. Young et al. specifically discloses heating the feed mixture to a temperature in excess of 200°C.

(7) Claim 56

Desai et al. and Young et al. do not disclose a process of forming a molded article including a flexible polyvinyl chloride having a Shore A hardness of about 40 to about 100 as in claim 56.

(8) Claim 57

Desai et al. and Young et al. do not disclose a process of forming a molded article where the article is a matrix comprising 10 to 40 wt% unmelted fiber materials from carpet scrap as in claim 57.

(9) Claim 58

Desai et al. and Young et al. do not disclose a process of forming a molded article from carpet scrap containing 50 to 80 wt% inorganic fillers and latex materials and where the inorganic fillers and latex materials are dispersed in the continuous phase as in claim 58.

8. Conclusion

For the reasons discussed above, Desai et al. does not disclose either expressly or inherently each of the claimed features of the fiber-reinforced flexible molded article of claims 34-48. The Action has not established where each of the claimed features are disclosed either expressly or inherently in Desai et al. Thus, Applicants submit that claims 34-48 are not anticipated. The combination of Desai et al. and Young et al. does not reasonably suggest to one of ordinary skill in the art a process of forming a molded article according to the steps of claims

49-58. Accordingly, reversal of the rejections are respectfully requested.

Respectfully submitted,



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Dated: Dec 5, 2008

APPENDIX A - Claims on Appeal

34. A fiber-reinforced, flexible matrix, wherein said matrix comprises:

about 10% to about 75% by weight of waste scrap carpeting, wherein said carpeting has a first polymer backing and carpet fibers from a polymer having a melting point higher than the melting point of polyvinyl chloride and where said waste scrap carpeting comprises about 50% to about 80% by weight of non-melting filler materials including inorganic fillers based on the weight of said backing; and

about 25% to about 90% by weight of a flexible second polymer, wherein said matrix is a substantially continuous phase of said first and second polymers having said carpet fibers and inorganic fillers dispersed therein, wherein said substantially continuous phase is formed by melting said first and second polymers and wherein said carpet fibers are not melted.

35. The matrix of claim 34, further comprising a polyvinyl chloride plasticizer.

36. The matrix of claim 34, further comprising a polyethylene copolymer.

37. The matrix of claim 34, wherein said matrix is a substantially homogenous mixture of polyvinyl chloride and discrete carpet fibers having a length of about 1/8 to about 2 inches.

38. The matrix of claim 34, wherein said polymeric fibers are selected from the group consisting of polyamide fibers, polyester fibers and mixtures thereof.

39. The matrix of claim 34, wherein said matrix comprises about 45% to about 85% by weight polyvinyl chloride.

40. The matrix of claim 34, wherein said flexible second polymer is flexible polyvinyl chloride is virgin polyvinyl chloride having a Shore A hardness of about 40 to about 100.

41. The matrix of claim 34, wherein said carpet scrap is selected from the group consisting of carpet scrap, post consumer carpet scrap, post industrial scrap, and mixtures thereof.

42. The matrix of claim 35, wherein said plasticizer is dioctyl phthalate.

43. The matrix of claim 34, wherein said matrix comprises about 5-20% by weight carpet fibers.

44. The matrix of claim 34, wherein said matrix comprises about 10-55% by weight polyvinyl chloride from said carpet.

45. The matrix of claim 34, wherein said carpet comprises about 15% fiber, about 45% polyvinyl chloride backing and about 40% inert material wherein the percentages are based on the weight of the matrix.

46. The matrix of claim 34, wherein said first polymer is polyvinyl chloride.

47. A fiber-reinforced, flexible matrix, wherein said matrix comprises:

about 10% to about 75% by weight of waste scrap carpeting, wherein said carpeting comprises a backing and carpet fibers from a polymer having a melting point higher than the melting point of polyvinyl chloride, said backing comprising about 30% to about 50% of a first polymer and about 50% to about 80% inorganic fillers and latex materials based on the weight of the backing; and

about 25% to about 90% by weight of a flexible polyvinyl chloride, wherein said matrix is a substantially continuous phase of polyvinyl chloride and said first polymer having said carpet fibers, inorganic fillers and latex materials dispersed therein, wherein said substantially continuous phase is formed by melting said polyvinyl chloride and wherein said carpet fibers are not melted.

48. The matrix of claim 47, wherein said matrix contains about 5% to about 20% of said carpet fibers, about 10% to about 40% of said filler materials and the remainder polyvinyl chloride based on the total weight of said matrix.

49. A process of forming a fiber reinforced, flexible molded article comprising the steps of:

supplying a feed mixture to the inlet of an extruder, said feed mixture comprising about 25% to about 90% flexible polyvinyl chloride and about 10% to about 75% carpet scrap based on the total weight of said feed mixture, said carpet scrap having a fiber component and a backing

material where said backing material includes about 30% to about 50% by weight of a first polymer component;

heating said feed mixture in said extruder to a temperature sufficient to melt said first polymer component of said carpet scrap and of said flexible polyvinyl chloride substantially without melting said fiber component and substantially without reducing the fiber length to form a substantially uniform and continuous mixture of said first polymer component and said melted polyvinyl chloride and an unmelted fiber component; and

discharging said substantially uniform mixture from said extruder and shaping and cooling said mixture to form a molded flexible article of a matrix of a substantially continuous phase of said first polymer component and said polyvinyl chloride having said unmelted fiber component dispersed therein.

50. The process of claim 49, wherein said molded flexible article comprises about 5% to about 20% by weight of said fiber component, and about 45% to about 85% by weight of said first polymer component and polyvinyl chloride.

51. The process of claim 49, wherein said molded flexible article comprises about 10% to about 55% by weight polyvinyl chloride supplied from said carpet scrap.

52. The process of claim 49, wherein said uniform mixture of melted polyvinyl chloride and unmelted fiber component has a melt flow index of less than about 5.

53. The process of claim 49, wherein said fiber component comprises polyamide fibers, polyester fibers, and mixtures thereof.

54. The process of claim 49, further comprising comminuting said carpet scrap into pieces of up to about 2 inches in length prior to feeding to said extruder.

55. The process of claim 49, comprising heating said feed mixture to about 140° to about 190°C to melt said polyvinyl chloride substantially without melting said fiber component.

56. The process of claim 49, wherein said flexible polyvinyl chloride has a Shore A hardness of about 40 to about 100.

57. The process of claim 49, wherein said matrix comprises about 10% to about 40% by weight of unmelted filler materials from said carpet.

58. The process of claim 49, wherein said carpet scrap contains about 50% to 80% by weight inorganic fillers and latex materials based on the weight of the backing, and where said inorganic fillers and latex materials are dispersed in said continuous phase.

EVIDENCE APPENDIX

None.

RELATED PROCEEDINGS APPENDIX

None.